

Armed Forces Institute of Pathology Becomes CDC Registered Testing Site for Human Swine Influenza

By Michele R. Hammonds
AFIP Public Affairs Office

Scientists here recently received training and developed assays clearing the way for the Armed Forces Institute of Pathology to become an H1N1 testing site.

"Today our institute is a Centers for Disease Control and Prevention approved DOD testing site for human swine influenza," said Dr. Mina Izadjoo, chief of the Division of Wound Biology and Translational Research. "This will provide an additional site for DOD that can analyze service members' samples. This is all about our Institute supporting readiness for swine flu outbreaks."

Initially, AFIP became involved in H1N1 flu research after receiving a number of requests for testing from the Walter Reed Army Medical Center, said Izadjoo.

"They had a dramatic increase in the number of tests that they had to do and asked us to help and started sending us suspected cases to see if we could detect swine influenza. We have obtained all the necessary instrumentation to officially report our diagnostic results. We also have the capability in our division for developing and testing vaccines and performing drug screening."

Maj. Thomas Shaak, deputy chief of Wound Biology and Translational Research, worked on setting up the swine influenza testing capability. He oversaw ordering of equipment, including the ABI 7500 Light Cycler, which is the approved CDC platform for testing samples for influenza viruses using specific protocols.

"We also do overflow testing for the District of Columbia," he said. "We work with onsite pathology and provide expertise for research on unique and difficult flu cases."

Wound biology scientists took steps to fully mobilize their swine flu diagnostic capabilities should these actions become necessary.

"Our efforts started last season with successful detection of this virus in our laboratory. Since then we have mobilized a team consisting of molecular biologists, virologists, and pathologists who contributed to the workload required for testing suspected clinical samples for H1N1 influenza viruses," Izadjoo said. "We provide an additional testing site/capability for DoD. However, what is unique about AFIP is

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Jennifer Engle, molecular biology research technician, right, reviews a polymerase chain reaction (PCR) run on the swine influenza assays. The Centers for Disease Control recommends assays that detect any possible influenza samples, whether it's H1N1 swine influenza or regular influenza. Dr. Hongguang Pan, research scientist, middle, and Dr. Mohammad Alavi, research scientist, look at the assays in the Division of Wound Biology and Translational Research laboratory at the AFIP.

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DIRECTOR'S MESSAGE



Continuing the Tradition of Collegiality

As the AFIP grew and matured during the late 1950s and 1960s a strong collegial atmosphere grew and matured along with it. Perhaps it was because departments had to share equipment and space that interaction was commonplace, or perhaps it was because of the influx of talent and the desire to learn from each other. Or perhaps — as I like to believe — a collegial atmosphere existed because it was simply the right way for an institution such as ours to operate.

Throughout the decades that collegial atmosphere has retreated and advanced several times — often because of the way the AFIP operated organizationally. For example, by 1980 most departments had their own budgets, their own equipment, their own laboratories, and their own support staff. They were essentially self-sufficient. But that also meant they were basically isolated from each other. By 1990 that had been reversed. Departments had to compete for funds, and people from many departments began working in collaborative groups to write research proposals, purchase equipment together, publish together and make presentations together. They learned that they could open up to other divisions and other ways of thinking while still maintaining a strong departmental identity.

In short, they embraced the benefits of a collegial atmosphere.

And that is what I need you to do throughout this year as the processes for both Base Realignment and Closure (BRAC) and standing up of the Joint Pathology Center (JPC) intensify. All of us — both individually and as departments or divisions — likely will be tempted during the coming months to abandon the needs of the organization as a whole. And to a certain extent, that's a perfectly understandable and natural initial reaction to the stress and strains of organizational change — especially the dramatic organizational changes we will be experiencing. I know from the many Director's Calls with you that you are concerned about what the future may bring in the coming months, even the in coming weeks in some cases.

Will my department be part of the Joint Pathology Center? Should I stick it out or begin looking for work elsewhere now? What are the chances of getting another job I like if I enter the Priority Placement Program? These are just a few of the many questions and concerns you have voiced. And I have also noted your frustration over the fact that questions heavily outweigh concrete answers.

These are indeed challenging times that often produce uncertain and conflicting emotions. But one thing is certain. There is still much work to be done to ensure continued excellent service to our stakeholders while still implementing the requirements of BRAC. And we must do so in an atmosphere of collegiality.

It is collegiality that will nourish our hearts and minds and keep us focused on the many tasks ahead. It is collegiality that will give us the energy to help other individuals and departments in need, even when our own workload seems overwhelming. It is collegiality that will keep us focused on the good of the Institute as a whole, while helping us avoid collapsing into a culture of narcissism. And it is collegiality that will motivate us to keep advancing military medicine as long as staffing, resources, and the constraints of BRAC permit.

As the lead article on H1N1 research in this edition of the "AFIP LETTER" demonstrates, there is timely, relevant, and necessary work that we can, should, and are doing on behalf of the men and women of our armed services

and the nation's veterans. We cannot afford to have our energies diverted away from staying focused on our primary missions of consultation, education, and research. Our commitment to excellence must not wane. Our ability to work as a team to solve the complex medical problems that enter our Institute every day must not waver. And our legacy of concern and compassion for each other, both personally and professionally, must not wither.

Collegiality will help carry us through these challenging times — but only if you embrace it and live it.

Florabel G. Mullick

Florabel G. Mullick, MD, ScD, FCAP
Senior Executive Service
The Director

Reminder for Contributors

The AFIP would like to remind case contributors to use AFIP Form 288-R, the Contributors Request Form, when submitting a case to the AFIP. In order for the Institute to properly accession a case, the form needs to be filled out and signed. The contributor's request form is available under the consultation tab at the AFIP Web site: www.afip.org. "Submitting the case with the form uploads all the information we need," said Frank Roberts, Associate Chair of the AFIP's Repository Services. "If we receive a case without the form, it could slow down the process from a few hours, to a few days."

The AFIP will no longer accept cases without Form 288-R. If a case is submitted without the form, the Institute will contact the contributor and request the completed form. If the completed and signed form is not received within 72 hours, the case will be returned. Civilian cases under litigation, or those that have a high potential for litigation, will not be accepted.

Limestone slab from Pentagon to grace new building for Medical Examiner Systems at Dover Air Force Base

Thanks in large part to the efforts of Navy Lt. Matthew Bagnall, MSC, Operations Officer for the Armed Forces Medical Examiner System, a limestone slab from the section of the Pentagon destroyed in the 9/11 terrorist attack

will become part of the organization's new building at Dover Air Force Base, Del.

"We were looking for an appropriate way to connect the Medical Examiners Office's past with the future

when we move to Dover in 2011 and settled on the idea of integrating a piece of the limestone into the design and construction of our new home," Bagnall said. "There were, of course several ways we could have accomplished this, but given that every division of the medical examiners system was involved in identifying the victims of the Pentagon attack, this seemed to be the most fitting avenue to pursue."

So in October Bagnall approached the Pentagon Renovation & Construction Office to determine the feasibility of obtaining a portion of the limestone. That office is in charge of approving and providing portions of the destroyed section of the Pentagon for incorporation in memorial sites, buildings, and other projects. And in early November Bagnall visited the site where the limestone remains of the crash site are housed to examine them and determine what piece would work best.

"We had considered obtaining a large piece to use as a cornerstone for the new building," Bagnall said, "but after looking at the shape, sizes and condition of what was left that didn't seem feasible. So instead we chose an approximately 150-pound slab that we felt could be incorporated in the side of the new facility."

After coordination with both the architectural firm and construction company for the new building, a formal written request for the piece was then provided to the Pentagon Renovation & Construction Office, along with a conceptual drawing depicting how it would be integrated into the structure. And on December 7, 2009 formal approval was granted and the slab was subsequently transported to the AFMES headquarters in Rockville.

William Hopper, Information & Communications Manager for the Pentagon Renovation & Construction Office said that approval for AFMES request was a no-brainer.

"Over the years we have received thousands of requests for pieces of the Pentagon, some of which are carefully weighed before being approved, and

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Navy Lt. Matthew Bagnall, MSC, Operations Officer for Armed Forces Medical Examiner Systems (AFMES), displays the approximately 150-pound limestone slab that will be incorporated into the organization's new headquarters at Dover Air Force Base, Del. The slab is from that portion of the Pentagon damaged in the 9-11 terrorist attack.



Conceptual drawing of how the limestone slab will be incorporated into the entrance to the new Armed Forces Medical Examiner Systems building at Dover Air Force Base, Del. At left is the piece of limestone, and next to it is a plaque which will include to-be-determined dedicatory language. (Drawing courtesy Wilmot-Sanz architectural firm.)

MIS10-011

MIS10-012



MISTO-013



MISTO-014

On the Road with AFIP Director

AFIP Director Dr. Florabel G. Mullick took her show on the road over the past few months, making presentations in both Buenos Aires, Argentina, and the Kingdom of Bahrain. (Left, top) In a collage-style photograph put together by Argentina's Academy of Sciences, Mullick is shown addressing members of the Academy, surrounded by slides from her presentation. The Academy presented Mullick with a certificate making her an honorary member. While in Buenos Aires in November, Dr. Mullick also made pathology presentations to the Military Hospital Center and to the South American Division of the International Academy of Pathology (IAP). She currently serves as IAP President. (Left, bottom) Mullick meets with Dr. Raja Al-Yusuf (head of table), Minister of Health, Kingdom of Bahrain, as well as leaders with the Arab Division of the IAP. Mullick was in Bahrain in December to address the 21st Arab Division IAP Congress. During the Congress, Dr. Mullick gave a presentation on "The Legacy of Dr. Kamal Ishak and the Future of Pathology." Dr. Ishak served as Chair of AFIP's Department of Hepatic and Gastrointestinal Pathology for nearly 40 years and was considered one of the foremost hepatic pathologists in the world.

Army LTC Greg Saturday, DVM, discusses veterinary training materials with Dr. Ezatuallah Jaheed, head of Kabul University's veterinary pathology department in Kabul, Afghanistan. LTC Saturday is a former staff member of AFIP's Department of Veterinary Pathology, and currently serves as the Chief of Diagnostics for the Veterinary Laboratory Europe in Landstuhl, Germany. LTC Saturday recently presented Dr. Jaheed with veterinary training materials donated by AFIP's Department of Veterinary Pathology. The materials included five study sets of classic disease entities, slide conference proceedings books, and access to AFIP's Veterinary Systemic Pathology Online data base.



MISTO-015

Highly experienced pathologists fill critical roles in pathology branches at Institute

Story and Photos by Michele R. Hammonds
AFIP Public Affairs Office

Two highly respected experts in their respective fields have joined the parade of pathologists added to the AFIP staff in recent months. Dr. Darryl Carter is specializing in breast pathology at the Institute, and Dr. Alan Morrison is working cases in the neuropathology department.

They join four other pathologists who became AFIP staff members last fall, including Dr. Russell Harley, Chair of the Department of Pulmonary and Mediastinal Pathology; Dr. Sharda Sabnis, Chief of the Division of Nephropathology; Dr. Linda Murakata, Hepatic Pathology; and Dr. Edina Paal, Department of Endocrine and Otolaryngologic Pathology.

Carter said he was initially contacted by Dr. William Gardner, executive director of the American Registry of Pathology at AFIP. "We trained together at Johns Hopkins many years ago, and he asked if I would be interested in consultation work, and I have been fascinated since I arrived here," Carter said. "I see cases sent in from various parts of the world, mostly from military installations and VA hospitals, but some from private institutions too. There have been some very unusual and challenging cases that have taken me and the whole group quite some time to figure out. We collaborate on the more difficult cases so we can get different ideas and perspectives, and to make sure we have thought of everything."

Carter estimates he consults on 10 to 15 cases per week, although he said it can vary from week to week and month to month.

Over the course of his 45 years of pathology work, Carter has written nearly 160 journal articles. Additionally, he has written four editions of "Interpretations of Breast

Biopsy." His most recent book, in which he is an associate editor, is entitled, "Diagnostic Surgical Pathology."

Morrison, who had spent much of his career in cytopathology and anatomic pathology, said he jumped at the chance to return to the AFIP's Neuropathology Department, which is headed by Army Col. Elisabeth Rushing, MC. "I had worked with Dr. Rushing when I did a fellowship years before, and I wanted to come back."

His first week back on the job, Morrison said he helped write a book chapter on neuropathology. Since then he has worked on neuropathology second-opinion cases.

"I have been extremely busy," said Morrison, motioning to a stack of cases on his desk. "But I'm glad that I can help."

Morrison holds certifications in Neuropathology, Anatomic and Clinical Pathology. Carter has board certifications from the Board of Medical Examiners, American Board of Pathology and Anatomic Pathology, and the Connecticut Board of Medical Examiners. Carter was a captain in the U.S. Army Reserve from 1963–1965. Morrison spent 27 years in the U.S. Navy and retired in 2007 after finishing up his final assignment at the National Naval Medical Center, Bethesda, Md.

Combined, Carter and Morrison have over 70 years of pathology experience.

Carter did his internship in surgery from 1961–1962, followed by residency training in surgery, both at University Hospital, Columbus, Ohio. He then went to Johns Hopkins Hospital to do a residency in pathology from 1965–1968. Carter served as an assistant professor of pa-

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Dr. Darryl Carter is specializing in breast pathology at the Institute.



Dr. Alan Morrison is working cases in the neuropathology department.

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that it provides both pathology and molecular diagnostics in one site."

Notable personnel who worked on the influenza project for this flu season included Dr. Mohammad Alavi, molecular biologist; Dr. Hongguang Pan, molecular biologist; Dr. Sue Cross, virologist; Dr. Huiling Hu, virologist; Dr. Binxue Zhang, molecular scientist; and Jennifer Engle, molecular biologist, all from AFIP's wound biology division.

As part of the wound biology division's ongoing efforts, they have started a collection of influenza viruses including the human H1N1 swine — from the more than 150 positive cases received and tested by the Institute.

"This collection can serve as a valuable scientific resource in genetic characterization of the strains specific to an outbreak," Izadjoo said. "The collection can be used for validating improved diagnostic swine flu assays."

Dr. Sue Cross, a virologist, used cell cultures to verify viable flu viruses from clinical specimens.

"If you have viruses in the clinical samples the viruses will kill the cells, and you can observe the changes under a microscope," she said. "If you see changes in the condition of the cells you can take the fluids and



Adrien Ravizee, research associate, is pipetting cells used to grow influenza virus to new flasks and plates, so the cells can be infected with influenza virus as Dr. Sue Cross, virologist, left and Dr. Huiling Hu, virologist observe.

extract and test the nucleic acid (RNA) to prove that you have influenza virus in the sample.

Izadjoo said, "Swine flu viruses cause high levels of respiratory disease in pigs but not high death rates. Although, these viruses may circulate among swine throughout the

year, outbreaks usually occur during the late fall and winter. This is very similar to human outbreaks. Human H1N1 is not the same as Swine Flu H1N1 and this is why seasonal flu vaccines do not protect us against swine flu."

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thology at Johns Hopkins University School of Medicine from 1969-1974; an associate professor from 1974-1977; and subsequently co-director of surgical pathology. From 1977-2003 he served in several positions at Yale University, including chief of surgical pathology, chief of cytopathology, and as a professor of pathology. Since 2005 he has been an adjunct professor of pathology at Johns Hopkins University.

"I have been doing a mixture of things since I retired, but nothing as intense as the work I am currently doing at the AFIP," said Carter, who also does some consultation pathology work for the National Institutes of Health and Yale University.

Morrison's post-graduate education and training include a medical internship from 1990 to 1991 and a

pathology residency from 1991 to 1995—both at the National Naval Medical Center. He went through the Neuropathology Fellowship Program at AFIP from August 1995 to August 1997. After completing the fellowship program, he worked as a staff neuropathologist and assistant chairman until 2000. His next military assignment, also in 2000, required him to serve as head of anatomic pathology at the naval hospital in Pensacola, Fla., until 2002. From 2003 to 2009 he held numerous staff pathology and teaching positions at the NNMC, Uniformed Services University of Health Sciences and University of Maryland, Baltimore.

Morrison has written nearly 30 journal articles and had published a combined 15 abstracts and posters while he served as a naval officer and pathologist during his nearly three decades of military service.

AFIP ophthalmic pathologist settles into position

Story and photo by Michele R. Hammonds
AFIP Public Affairs Office

Diagnosing difficult and complicated cancers of the eyes is not something that one pathologist views lightly. His name is Dr. John Cameron and he has seen a lot of eye-related cancers during his more than 32 years of experience in ophthalmology and pathology. Cameron currently serves as chief of Ophthalmic Pathology at the Armed Forces Institute of Pathology.

"We look at all of the types of tissue that an ophthalmologist would remove at the time of surgery," he said. "That would be eyelids, conjunctiva, cornea and then whole eyes and any tissues that come from the orbit around the eye. So that is quite a variety of things that we look at."

Melanoma can cause death and squamous cell carcinoma can cause serious damage to the eye. "Patients have to be followed very closely in case the tumor comes back," Cameron said. "It is very important to catch it early. There are not many people who actually have the experience to diagnose those cases. Those are the kind of tumors that are frequently referred to AFIP for second opinion."

Conjunctiva melanoma occurs in about one in a million people in the United States per year, Cameron said.

Despite the smaller number of this type of cancer he said, "I have seen quite a few cases like this since I arrived here."

Cameron examines cases sent to the AFIP to identify cell changes, possible tumors and disease stages.

"I can advise the surgeons that they don't have to do anything; or get more tissue, or refer the patient to an oncologist for a full systemic review to make sure there is no cancer that can go from the eye to the liver," he said. "You can live without an eye, but you cannot live without a liver."

Cameron said despite the complex consultation cases he and fellow pathologists see, most don't require removal of an eye because they are either in the early or middle stages of cancer. However there are exceptions.

"One of the cancers we looked at was where the cancer spread into the eye, so the eye had to be removed as well," Cameron said.

Sympathetic ophthalmia, which is an inflammatory disease of the eye, is another type of consultative case he has done.

"If you have an eye that is injured, you can get an inflammatory action that can involve both eyes, even though only one eye initially was injured," he said. "As a result you can go blind in both eyes."

Since coming to the AFIP in April 2009, Cameron said he sees a couple hundred cases a month, of which about 50 percent are military and 50 percent civilian. Dr. Emiko Furusato, an ophthalmic pathologist at AFIP, works on eye consultations with Cameron, and they often collaborate on their diagnoses.



Dr. John Cameron has more than 32 years of experience in ophthalmology and pathology. Cameron is board certified in ophthalmology and pathology, and is chief of Ophthalmic Pathology at the Armed Forces Institute of Pathology.

Nowadays, Cameron is also teaching ophthalmic residents from the Washington, DC area, including those at the Washington Hospital Center, Georgetown, Johns Hopkins, and Walter Reed Army Medical Center. Upon his return to the AFIP, he, along with Dr. Max Helfgott of the Washington Hospital Center, started the monthly Washington Hospital Center Ophthalmology Training Program.

"Dr. Helfgott really pushed for this program," he said. "He provided the opportunity. I teach residents one night a month and we talk about ophthalmic pathology cases. Teaching is one of the fundamental missions of the AFIP."

Teaching is something that was instilled in Cameron 32 years ago when he worked under famed AFIP pathologist, Dr. Loren Zimmerman.

"It is wonderful to come back because the AFIP has changed a lot over the years," said Cameron, who recalled in 1997 that AFIP's ophthalmic department staff included five pathologists and five residents. "It was a huge department at that time, but now it is just me," he said.

Furusato added, "For a while we did not have anyone here to sign out cases. 'It is good to have him here now.'"

Cameron retired from the Mayo Clinic in Rochester, Minnesota in April 2009, but unlike many retirees he decided to take on another full-time medical position. He needed to have looked no further than the AFIP.

Cameron described working at the AFIP as "the perfect fit." In addition to his caseload, he is also working on writing articles and books.

"It is time for me to kind of summarize everything. I think it is important to document things for the next generation of people doing eye pathology."

AFIP team performs annual site survey with the Repository Modernization and Preservation Project

By Robyn Mincher
Technical Writer

As part of the ongoing upgrading and modernization of the DoD Pathology Repository, members of the technical support and quality assessment team evaluated the progress of the digitization of cases for the Repository Modernization and Preservation Project. The team was assembled by Christopher Owner, PhD, the Contracting Officer Representative. Owner, along with Associate Chair Frank Roberts and Radiologic Pathology Administrator Don Hatley were joined by Jameelah Johnson, Chief of Records Repository and Albert Judd, Director of Information Management. Since 2002, the AFIP has contracted with National Interest Security Company (NISC) to digitize case files into the ever growing Virtual Repository, already containing millions of unique and standard cases dating back to the early 1900s. This modernization will scan delicate case material into electronic form to avoid deterioration from use and time. Once case material is scanned into the Repository, essential information from a wealth of files will be available to pathologists at the click of a mouse. "This information we can now have at our fingertips, and we don't have to worry about it corroding," said Johnson. "Pathologists can use this information all over the world."

The team first went to Rocket Center, West Virginia, to visit the IT operations center of NISC, to assess the technical support operations of the upgrade project. "We reviewed the IT system, security and compliance with DoD requirements," said Roberts. The team looked at how the system protected patient health information within the cases, and reviewed the process to make sure NISC maintained a quality work product. Next, they traveled to Co-

wen, West Virginia, where items of the National Museum of Health and Medicine, along with AFIP patient case records were being scanned into a digital format. "These can be really delicate items, such as documents made out of rice paper," said Johnson. "Some of these items are from 1917." The group toured the facilities and witnessed the intricate process of digitizing items into the database. With the recent addition of Radiologic Pathology cases into the Virtual Repository, Hatley wanted to ensure the project was a smooth process. "What we wanted to check out at Cowen was the computer processes that they use to store and retrieve the data," said Hatley.

The team was pleased with the growth of the project and continuing addition of cases, images and documents. "The contractor is fulfilling all the requirements necessary," said Roberts. "No items identified needed improvements." Hatley noted the ongoing progress with Radiologic Pathology cases: "The digitization of an entire archive of over 600,000 radiologic pathology images is very significant. They are close to being finished and we have one section left." The AFIP is proud of the wealth of unique and standard cases that are used by significant studies affecting the health of our servicemembers, such as research on Post Traumatic Stress Disorder and Traumatic Brain Injury. Having such a diverse collection of cases available electronically allows for easy access to past and present prominent cases involving notable diseases. "The AFIP mapped the genome of the Spanish flu," said Johnson. "This project is a great way to have those valued documents and others in the computer system."

AFIP receives accreditation renewal from College of American Pathologists

The AFIP has been awarded renewed accreditation by the Commission on Laboratory Accreditation of the College of American Pathologists (CAP), based on the results of our most recent site inspection.

This was the second CAP inspection under the leadership of AFIP Director, Florabel G. Mullick, MD, ScD, FCAP, Senior Executive Service. The AFIP laboratories are among the more than 6,000 CAP-accredited laboratories world-wide.

During the CAP laboratory accreditation process, inspectors scrutinize

laboratory records and quality control documentation for the preceding two years. CAP inspectors also examine staff qualifications, laboratory equipment, facilities, the safety program, and overall management. This stringent inspection program is designed to ensure the highest standard of care.

The new CAP and CLIA certifications can be found on our AFIP website at <http://afip.org>.

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many of which that don't get approved," Hopper said. "But we didn't have to think twice about this one. The medical examiners were intimately involved in that tragic event through their identification of the victims. Their sacrifices in the days and months that followed were immensely helpful for the Department of Defense, and especially for the families of the victims."

2010 Continuing Medical Education Courses

DME

COURSE SPOTLIGHT



46th Annual Forensic Dental Identification and Emerging Technologies Lectures and Mini Workshops

- 3–7 May 2010
- The Scottsdale Plaza Resort

This 5-day course is designed to include lectures and workshops. The primary focus of the course is to expose the experienced forensic scientist, and to introduce the novice, to state-of-the-art techniques for forensic endeavors, with an emphasis on mass disaster and dental identification. The laboratory session integrates digital radiology, photographic capture and computer database, with a mock mass disaster identification exercise. Other laboratories include bitemark analysis, skeletal anthropology, and radiographic age assessment.

For information contact course coordinator Isaac Miller.

25th Anniversary Washington Neuroradiology Review Course

- 20–21 February 2010
- Bethesda North Marriott Hotel and Conference Center
- Bethesda, Maryland

This two-day weekend course is designed to offer radiologists, neurologists, neurosurgeons, and pathologists a basic review and update of selected neuroradiology topics. Important radiologic-pathologic concepts will be illustrated by magnetic resonance imaging, computed tomography, as well as conventional studies.

For more information contact course coordinator Ricky Giles.

48th Annual Dr. Kenneth M. Earle Memorial Neuropathology Review Course

- 22–26 February 2010
- Bethesda North Marriott Hotel and Conference Center
- Bethesda, Maryland

Kenneth M. Earle, MD, former Chair, Department of Neuropathology, initiated a course designed to prepare pathologists, neurologists, and neurosurgeons for specialty board certification. This is the 48th iteration, which is dedicated to his memory. The 5-day course will provide a comprehensive review of neuropathology for individuals interested in the neurosciences and pathology. Lectures will be illustrated by gross and microscopic photographs using PowerPoint presentations, and will be supplemented by a course syllabus on CD.

For more information contact course coordinator Ricky Giles.

20th Annual Anatomic Pathology Course

- 5–9 April 2010
- Hyatt Regency Hotel, Bethesda, Maryland

This impressive course covers general and specialized areas of anatomic pathology. An intensive session in inflammatory, infectious, and tumor-related diseases, this 5-day course reviews all fields in surgical pathology, cytology and forensics. Renowned experts from all of AFIP's many departments will be teaching in every sub-specialty from vast experience in international consultation, large research studies and international continuing medical education programs.

Unique to this course are the 500+ cases that participants will review. These slides are chosen from AFIP's compilation of material dating back to 1916, which is continually reviewed and renewed by the organization's experts. Attendees can review classic and complex anatomic pathology slides and test themselves on the diagnoses during the course. Highlights of this course include:

- 40 hours of lectures.
- 25 hours of microscope time
- 65 AMA Category 1 credits
- Entire revised course syllabus available on CD
- The only anatomic course with exceptional slides to self-review AND microscopes provided

Computer access to digital slides for one year following the course through our online educational platform, <http://www.askafip.org>

23rd Annual Forensic Anthropology

- 7–11 June 2010
- National Transportation Safety Board
- Training Center, Ashburn, Virginia

Forensic anthropology is concerned with the scientific recovery, analysis and identification of human remains in the medicolegal context. Forensic anthropologists frequently apply their knowledge of human remains to victim identification, remains search and recovery and the interpretation of skeletal trauma. Over time, the role of the forensic anthropologist has expanded to include a greater role in human rights investigations and mass disaster operations. This course uses hands-on lab sessions to introduce basic techniques of skeletal analysis. Lectures provide the theoretical and methodological basis of human osteology and introduce applications used by anthropologists in their work. Forensic pathologists, death investigators, forensic dentists, attorneys and other specialists engaged in multi-disciplinary forensic investigations will find this course an excellent survey of forensic anthropology.

DME

Department of Medical Education
Armed Forces Institute of Pathology
6825 16th Street, NW
Washington, DC 20306-6000

FOR MORE INFORMATION CONTACT:

Telephone: 202.782.2637

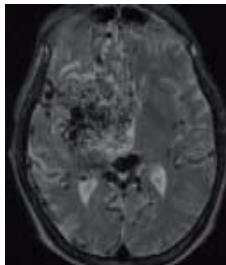
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25th Anniversary Washington NEURORADIOLOGY REVIEW COURSE

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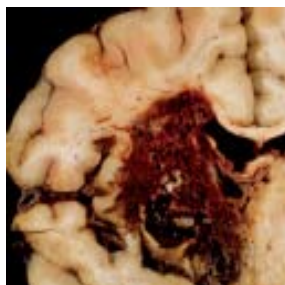
**25th Anniversary Washington
Neuroradiology Review Course**
20 - 21 February 2010
Bethesda North Marriott Hotel and
Conference Center
Bethesda, Maryland

**48th Annual Dr. Kenneth M. Earle Memorial
Neuropathology Review Course**
22 - 26 February 2010
Bethesda North Marriott Hotel and
Conference Center
Bethesda, Maryland

**20th Annual
Anatomic Pathology Updated Course**
5 - 9 April 2010
Hyatt Regency Hotel
Bethesda, Maryland

**46th Annual
Forensic Dental Identification and Emerging
Technologies - Lectures and Mini Workshops**
3 - 7 May 2010
The Scottsdale Plaza Resort
Scottsdale, Arizona

**23rd Annual
Forensic Anthropology**
7 - 11 June 2010
National Transportation Safety Board
Training Center
Ashburn, Virginia



The five-day course will provide a comprehensive review of neuropathology for individuals interested in the neurosciences and pathology. Lectures will be illustrated by gross and microscopic photographs using PowerPoint presentations, and will be supplemented by a course syllabus on CD.

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The primary focus of the course is to expose the experienced forensic scientist, and to introduce the novice, to state-of-the-art techniques for forensic endeavors, with an emphasis on mass disaster and dental identification. The laboratory session integrates digital radiology, photographic capture and computer database, with a mock mass disaster identification exercise.

☐ **YES!** I am interested in registering for this course.

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Name: _____
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46th Annual Forensic Dental Identification and Emerging Technologies

3 - 7 May 2010
The Scottsdale Plaza Resort
Scottsdale, AZ

ABSTRACTS OF RECENT PUBLICATIONS BY AFIP STAFF

Fibrosis progression in chronic hepatitis C: morphometric image analysis in the HALT-C trial

Goodman ZD, Stoddard AM, Bonkovsky HL, Fontana RJ, Ghany MG, Morgan TR, Wright EC, Brunt EM, Kleiner DE, Shiffman ML, Everson GT, Lindsay KL, Dienstag JL, Morishima C

Computer-assisted morphometry can provide precise measurement of hepatic fibrosis on a continuous scale. Previous morphometric studies of large cohorts of patients with treatment refractory chronic hepatitis C have shown a mean increase in fibrosis of 30% to 58% in 1 year. The aim of the present study was to quantify fibrosis progression in biopsy specimens obtained over 1.5 to 5 years from three groups of patients with baseline bridging fibrosis or cirrhosis (Ishak stages 3-6) enrolled in the Hepatitis C Antiviral Long-term Treatment Against Cirrhosis Trial. The main group of 346 lead-in nonresponders (viremic after 24 weeks of peginterferon-ribavirin therapy) had a mean fibrosis increase of 61% over pretreatment baseline after 2 years and 80% after 4 years. In contrast, the 78 breakthrough/relapse patients (undetectable serum hepatitis C virus RNA after 24 weeks of peginterferon-ribavirin and receiving antiviral therapy for 48 weeks) showed a mean increase in fibrosis of 48% when biopsied 36 months from pretreatment baseline but no further increase at 60 months. Finally, the 111 express patients with baseline biopsies following unsuccessful peginterferon-ribavirin outside the trial had significantly more baseline fibrosis than the others but an increase of only 21% after 21 months and a slight decrease at 45 months. Maintenance therapy with low-dose peginterferon had no effect on fibrosis changes in any of the groups. **CONCLUSION:** Morphometry demonstrated complex, nonlinear changes in fibrosis over time in this heterogeneous cohort of patients with interferon-refractory chronic hepatitis C.

Hepatology. 2009 Dec;50(6):1738-49.

Pigmented lesions of the central nervous system: radiologic-pathologic correlation

Smith AB, Rushing EJ, Smirniotopoulos JG

Pigmented lesions of the central nervous system (CNS) are a diverse group of entities that run the gamut from benign to malignant. These lesions may be well circumscribed or diffuse, and their imaging appearances are influenced by the degree of melanin content as well as the presence or absence of hemorrhage. Pigmented lesions include primary melanocytic lesions of the CNS and metastatic melanoma, as well as other CNS neoplasms that may undergo melanization, including schwannoma, medulloblastoma, and some gliomas. Primary melanocytic lesions of the CNS arise from melanocytes located within the leptomeninges, and this group includes diffuse melanocytosis and meningeal melanomatosis (seen in neurocutaneous melanosis), melanocytoma, and malignant melanoma. Primary melanin-

containing lesions of the CNS must be differentiated from metastatic melanoma because these lesions require different patient workup and therapy. Absence of a known primary malignant melanoma helps in the differential diagnosis, but an occult primary lesion outside the CNS must be sought and excluded. Pigmented lesions of the CNS are uncommon, and knowledge of their imaging characteristics and pathologic features is essential for their identification. (c) RSNA, 2009.

Radiographics. 2009 Sep-Oct;29(5):1503-24.

Forensic imaging-guided recovery of nuclear DNA from the spinal cord

Theodore Harcke H, Monaghan T, Yee N, Finelli L

Our objective is to document the recovery of DNA from the spinal cord or surrounding dura mater in 11 cases of severely burned human remains. Radiographs established that portions of charred tissue contained spine segments. Multidetector computed tomography (MDCT) revealed that each spine specimen contained an intact spinal cord remnant. A full DNA profile was obtained from seven specimens using spinal cord dura mater in six specimens and spinal cord medulla in one specimen. A partial profile was obtained from four specimens (spinal cord dura mater, 2; spinal cord medulla, 2). Bone and muscle surrounding the spinal cord appear to insulate nucleic acid containing tissue from critical thermal degradation. The spinal cord, which is easily identified by MDCT examination of remains and easily recovered at the postmortem examination, can be a source of DNA with extraction yields comparable with other tissue sources. Specimens of dura mater are preferable as processing time is faster than bone.

J Forensic Sci. 2009 Sep;54(5):1123-6. Epub 2009 Aug 3.

DOG1 antibody in the differential diagnosis of gastrointestinal stromal tumors: a study of 1840 cases

Miettinen M, Wang ZF, Lasota J

Gastrointestinal stromal tumors (GISTs), KIT or platelet derived growth factor receptor alpha (PDGFRA) signaling driven mesenchymal tumors of the gastrointestinal (GI)-tract and abdomen, require a precise diagnosis so that the patients may benefit from the newly introduced tyrosine kinase inhibitor drugs. The limitations of the current main tools, KIT immunohistochemistry and KIT/PDGFRA mutation analysis, include lack of KIT expression and mutations in some GISTs. In this study we examined 1168 GISTs of different sites and histologic subtypes, and 672 other tumors and normal tissues for discovered on GIST-1 (DOG1) clone K9, a newly introduced immunohistochemical marker, a chloride channel protein. All GISTs and selected non-GISTs were independently evaluated for KIT. In the GI tract, Cajal cells and gastric surface epithelia were DOG1-

positive. The overall sensitivity of DOG1 and KIT in GISTs was nearly identical: 94.4% and 94.7%, and results in GISTs were generally concordant. Gastric spindle cell GISTs were nearly uniformly positive for both markers, whereas DOG1 performed slightly better in gastric epithelioid GISTs that included PDGFRA mutant GISTs. In the intestinal GISTs, KIT was slightly more sensitive than DOG1. Negativity for both DOG1 and KIT was observed in 2.6% of GISTs of GI tract. KIT or PDGFRA mutations were detected in 11/24 DOG1-negative GISTs supporting the diagnosis of GIST. DOG1 expression was also generally present in extragastrointestinal and metastatic GISTs. DOG1 was highly specific for GIST, but exceptional DOG1-positive other mesenchymal tumors included uterine type retroperitoneal leiomyomas, peritoneal leiomyomatosis, and synovial sarcomas (positive in 5/42, 4/17, and 6/37 cases). Leiomyomas colonized by DOG1-positive Cajal cells should not be confused with GISTs. DOG1 positivity was relatively common in esophageal squamous cell and gastric carcinomas, whereas it was rare in colorectal carcinomas. DOG1 should be added into the diagnostic panel evaluating GI and other abdominal tumors, but limitations in its sensitivity and specificity should be recognized.

Am J Surg Pathol. 2009 Sep;33(9):1401-8.

Feline peripheral nerve sheath tumors: histologic, immunohistochemical, and clinicopathologic correlation (59 tumors in 53 cats)

Schulman FY, Johnson TO, Facemire PR, Fanburg-Smith JC

Feline peripheral nerve sheath tumors are uncommonly reported, and their clinical behavior has not been well documented. Fifty-nine peripheral nerve sheath tumors were collected from 53 cats. All of the tumors involved skin, subcutis, skeletal muscle, and/or mucous membranes. Histologically, the tumors were composed of compact to loosely arranged streams and fascicles of spindled cells with eosinophilic, often wavy cytoplasmic processes; small to occasionally moderate amounts of collagenous to myxoid matrix; and nuclear palisading. Immunohistochemically, all tumors were positive for vimentin and S-100 protein, 44 of 59 were positive for glial fibrillary acidic protein (GFAP), and all were negative for muscle specific actin. The tumors fell into 3 histologic categories: 34 benign tumors with Antoni A areas that were S-100 protein and GFAP positive, 9 benign tumors that lacked Antoni A areas and were S-100 protein positive and GFAP negative, and 16 tumors with features of malignancy. Seventy-five percent of these cases involved the head, neck, or limbs. Recurrent tumors were submitted or tumors were reported to have recurred in 9 cases. Tumor recurrence was reported for all 3 of the histologic subtypes. None was documented as having metastasized.

Vet Pathol. 2009 Nov;46(6):1166-80. Epub 2009 Jul 15.

Armed Forces Institute of Pathology
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The Director

ATTN: AFIP-PA

Armed Forces Institute of Pathology

Washington, DC 20306-6000

Telephone (202) 782-2115 DSN 662-2115

FAX: (202) 356-0763 Email: stonep@afip.osd.mil

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1. Furusato B, Tsunoda T, Shaheduzzaman S, Nau ME, Vahey M, Petrovics G, McLeod DG, Naito S, Shirasawa S, Srivastava S, Sesterhenn IA. Osteoblast-specific Factor 2 Expression in prostate cancer-associated stroma: identification through microarray technology. *Urology*. 2009 Dec 24. [Epub ahead of print]
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